FRD Activities Report
February 2004

Research Programs

Pentagon Shield

A proposal to conduct an SF_6 atmospheric tracer experiment at the Pentagon near Washington, D.C., was accepted this month by the U.S. Army Corp of Engineers. The experiment will be conducted for a 2-week period sometime between April 15 and May 15 of this year. The proposal calls for 3 test days using both a mobile and a stationary release source. A total of 50 bag samplers and three real-time analyzers will be deployed on and around the Pentagon and the Pentagon Campus. Collaborators include other divisions of ARL (the Atmospheric Sciences Modeling Division (ASMD) and Atmospheric Turbulence and Diffusion Division (ATDD)), the National Center for Atmospheric Research (NCAR), the University of Colorado (CU), and Coherent Technologies, Inc. (Kirk.Clawson@noaa.gov)

CBLAST-High

Two extended abstracts describing measurements obtained in Hurricanes Fabian and Isabel last year were submitted to the AMS for the upcoming 26th Conference on Hurricanes and Tropical Meteorology.

The annual CBLAST-Hurricane planning meeting was hosted jointly by NOAA/AOML and University of Miami RSMAS in mid-February. Discussions revolved around analysis plans for last year's data set, deployments for the upcoming hurricane season, and long term plans for continued analysis/measurement campaigns. A request is being made to fund ongoing data analysis for 2005 through NOAA/USWRP. An overview paper for CBLAST-Hurricane, focusing on instrument developments and successes in the 2004 deployment is in preparation and is expected to be completed before this year's deployments. Installation of the BAT probe is tentatively scheduled for May/June time frame, with final testing in early to mid August. (Jeff.French@noaa.gov)

ET Probe

An extended abstract describing the ET probe and last year's deployment into Hurricane Isabel was completed in early February and has been sent to the American Meteorological Society for inclusion in the preprints for the upcoming 26th Conference on Hurricanes and Tropical Meteorology.

The annual planning meeting for CBLAST-Hurricane participants took place in Miami from 17-20 February. A short presentation on the ET probe progress was given during this meeting. Plans

were also discussed both for the upcoming hurricane season and for possible future funding of the CBLAST-Hurricane research. The ET probe is scheduled to receive some limited funding in fiscal year 2005 for final data analysis and publication, but many of the other projects are currently scheduled to terminate at the end of this fiscal year. (Richard.Eckman@noaa.gov)

BRACE

A data meeting for BRACE participants was held at the University of South Florida in Tampa on February 25 and 26. The participants discussed results from the 2002 field experiment and set goals and deadlines for completion of research papers. The articles will be submitted to a journal as a special BRACE issue. Candidate journals include the Journal of Geophysical Research and Atmospheric Environment. Tom Watson and Noreen Poor will act as editors. (tom.watson@noaa.gov)

JOINT URBAN-2003

All Joint Urban 2003 final programmable integrating gas sampler (PIGS) and continuous analyzer data, along with their respective quality control (QC) reports were sent to the project archive by the established due data of February 6th. Expanded versions of the QC sections, to be included in the final report, have been written and are in the process of review. (debbie@noaa.inel.gov, roger@noaa.inel.gov)

ARL SERA Program

A visit was made to the Baylor Institute of Air Science (BIAS) in Waco, Texas, for discussion involving possible collaboration between ARL scientists and the BIAS group. BIAS operates several aircraft ranging from single engine Cessnas to a Twin Otter. BIAS is interested in shifting the focus of their measurements capability to smaller aircraft, away for the more expensive-to-operate, larger twins. In addition to their Cessnas, BIAS also has a Velocity that they are interested in using for Atmospheric Research. Discussions are ongoing as how ARL and BIAS can work together and utilize each other's strengths for future research studies. (Jeff.French@noaa.gov)

Smart Balloon Research

The newly designed transponder main circuit board design has been completed. It is presently being manufactured and should be on hand for hardware and software debugging in early March 2004. (Randy.Johnson@noaa.gov, Shane Beard)

Cooperative Research with INEEL

Emergency Operations Center (EOC)

EOC qualification drills continued in February. Team B (Kirk Clawson and Randy Johnson) participated in a drill on February 10, while Team C (Neil Hukari and Roger Carter) participated

on February 18. The scenario was centered around the INTEC facility. A simulated overpressure in 300,000 gallon tank caused venting of a yellow gas plume. FRD personnel used real weather as input to the MDIFF transport and dispersion model to provide simulated evacuation support to the emergency director.

INEEL Support

FRD handled a request from INEEL for hourly Mesonet wind and temperature data spanning the five-year period from 1999 to 2003. These data are required for use in some of the air-quality modeling required at the site. Although the raw Mesonet data are five-minute averages, hourly averages are routinely derived as part of FRD's annual support to the site. The requested data were therefore readily available. However, the INEEL personnel also requested that any periods of missing data be filled in. It took somewhat more time to develop the software to do this in a reasonable manner. The algorithms used for the filling were based on published EPA guidelines for handling missing data. (Richard.Eckman@noaa.gov)

INEEL Free Space Optics Communications Testing

Bechtel BWXT (a consortium of INEEL contractors) has requested assistance in measuring wind and turbulence around an optical communications test facility for the Department of Homeland Security. FRD is presently working with Bechtel BWXT Communications Department to provide them with the requested meteorological support. (Randy.Johnson@noaa.gov)

INEEL Mesoscale Modeling

Testing of the new MM5 configuration for Southeast Idaho continued in February. The model runs seem to have a higher probability of failing on days with active weather, mainly because the NCEP Eta model output is sometimes delayed on these days. The control script used to start the MM5 runs was modified to allow MM5 to recover from time delays of the Eta data if the delays are not too long. (Richard.Eckman@noaa.gov)

Other Activities

Outreach

Shane Beard did a one-hour presentation at a local elementary school on February 23. The Temple View Fifth Grade students are doing a unit of study on space exploration. A bus on the school grounds has been modified to simulate a space shuttle, and the children act as mission specialists as they travel to an (imaginary) alien planet, where they do several weather experiments, record daily weather readings, make observations, and use the information to make weather forecasts. In preparation for this activity, Shane displayed several meteorological instruments and explained how they work and how the information they collect is used. They talked about barometers, wind speed and wind direction sensors, temperature, relative humidity and cloud formations. Shane also did a similar presentation at the school last year. (Shane.Beard@noaa.gov)

Papers

An abstract entitled *Does Pulsed Sampling Provide Good Estimates of Atmospheric Concentration?* by Debbie Lacroix and Roger Carter was accepted by the United States Environmental Protection Agency's 23rd Annual National Conference on Managing Environmental Quality Systems to take place in Tampa in April 2004. The final paper is out for review. (debbie@noaa.inel.gov, roger@noaa.inel.gov)

Travel

Tom Watson to Tampa, Florida, February 16-20, for BRACE data meeting

Jeff French and Rick Eckman, February 17-20, to Miami for CBlast Hurricane planning meeting and data workshop

Jeff French to Waco, Texas, February 25-27, for meeting with Baylor Institute for Air Sciences group.